Electronic Supplementary Material (ESI) for Nanoscale

An assembly-inducing PDC enabling the efficient nuclear delivery of nucleic acid for cancer stem-like cells suppression

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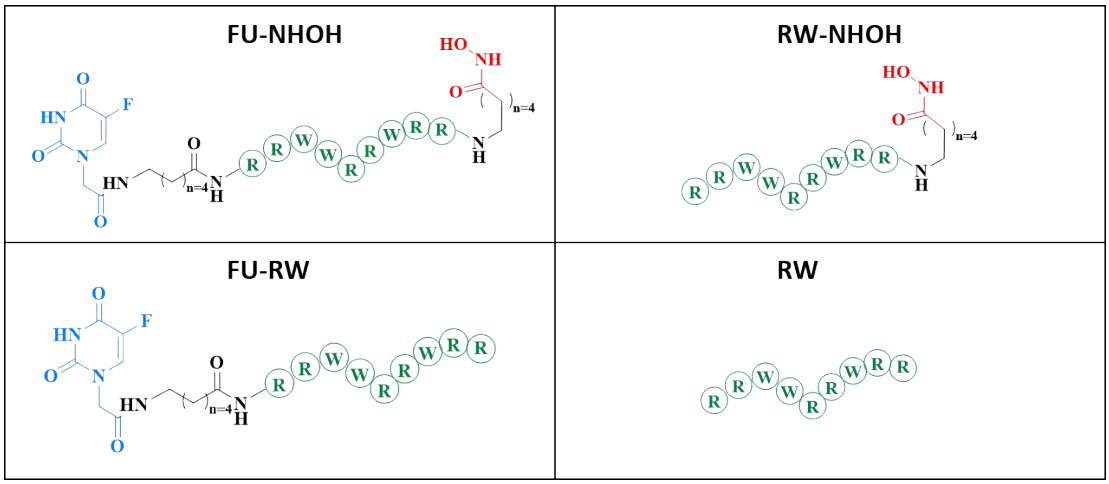


Fig. S1 The design and structure of different peptides.

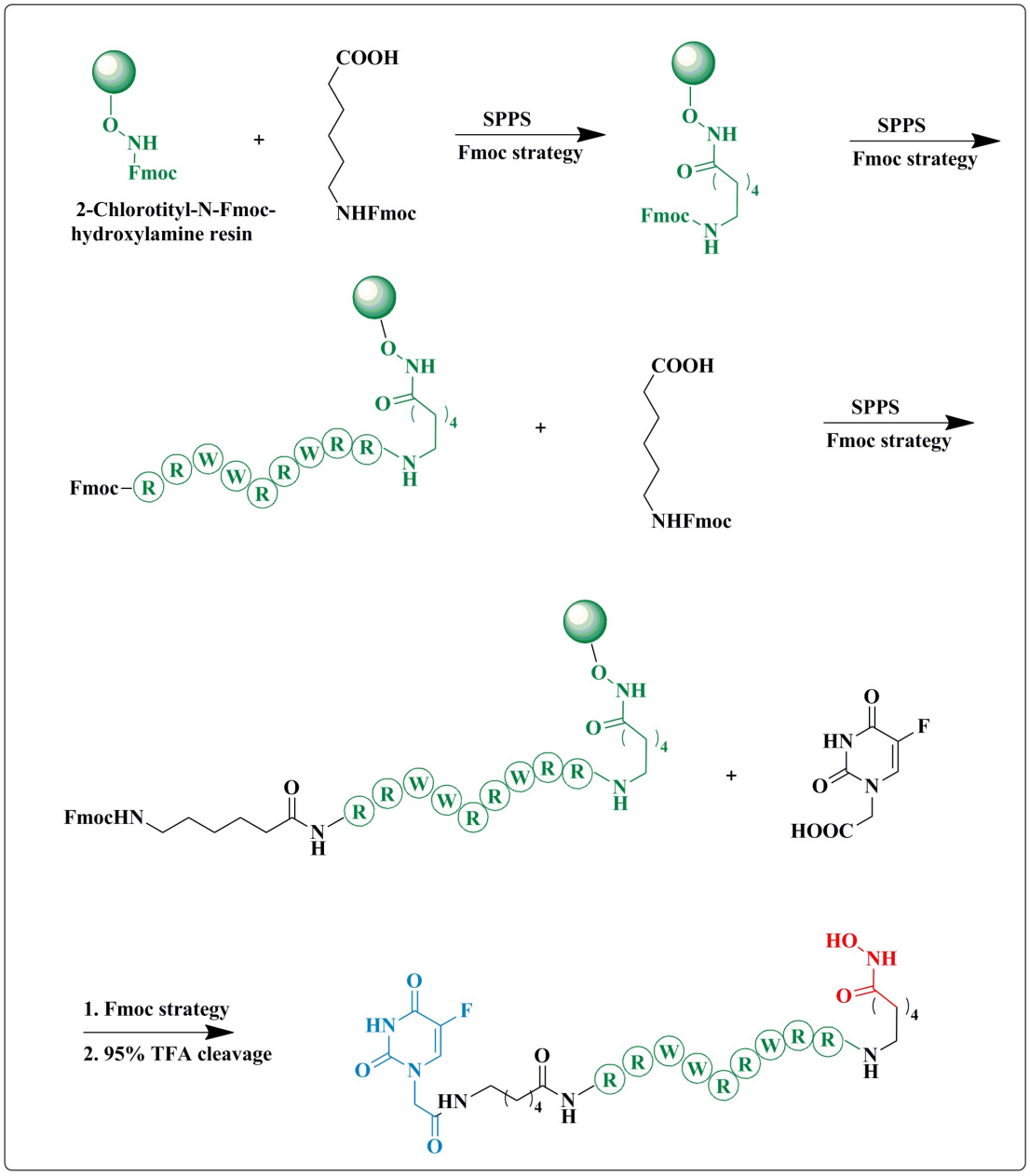


Fig. S2 The synthesis of peptide FU-NHOH through Solid Phase Peptide Synthesis(SPPS).

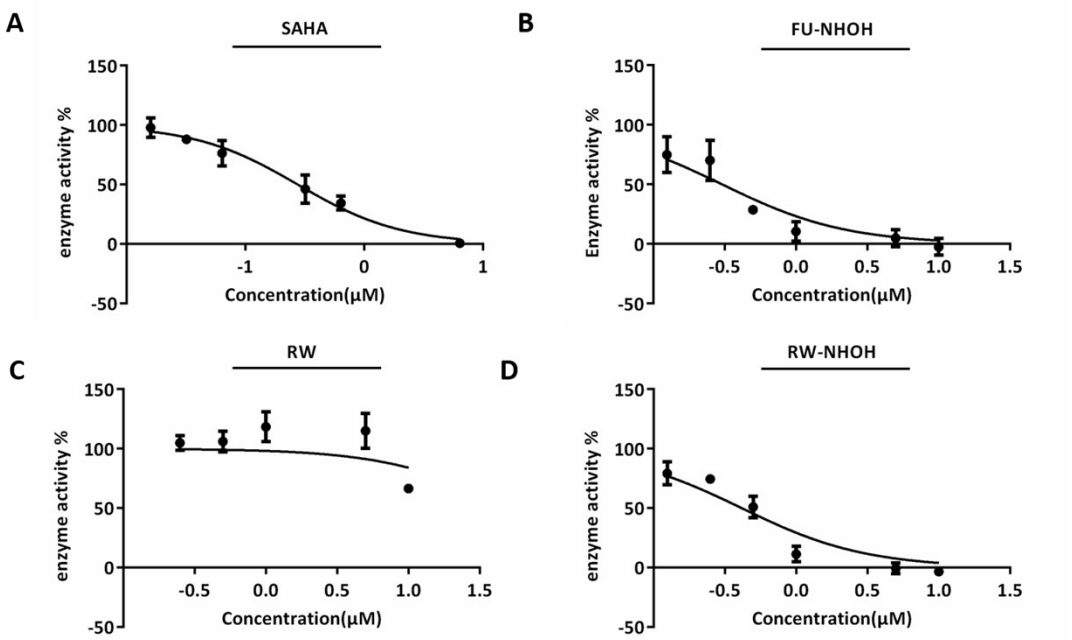


Fig. S3 HDAC enzymatic inhibition effect of various peptides.

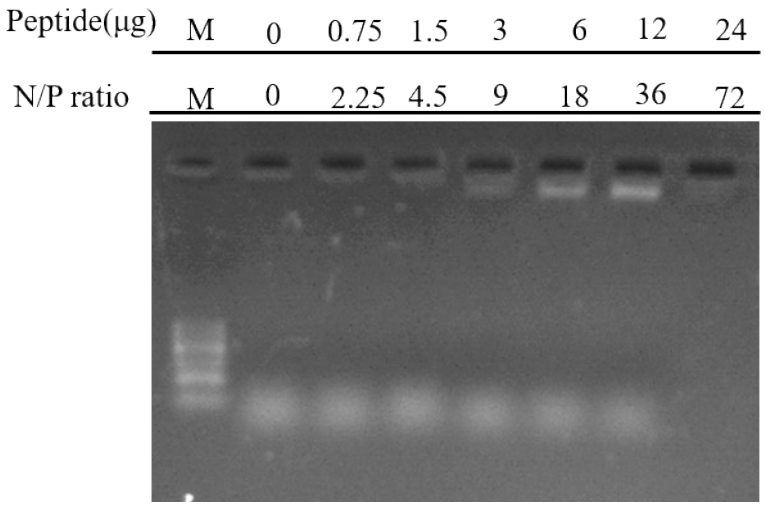


Fig. S4 Gel retardation of FU-NHOH assembled with AS1411. Approximately 0.3μg AS1411 could be completely loaded by 24μg peptide FU-NHOH(N/P ratio 72).

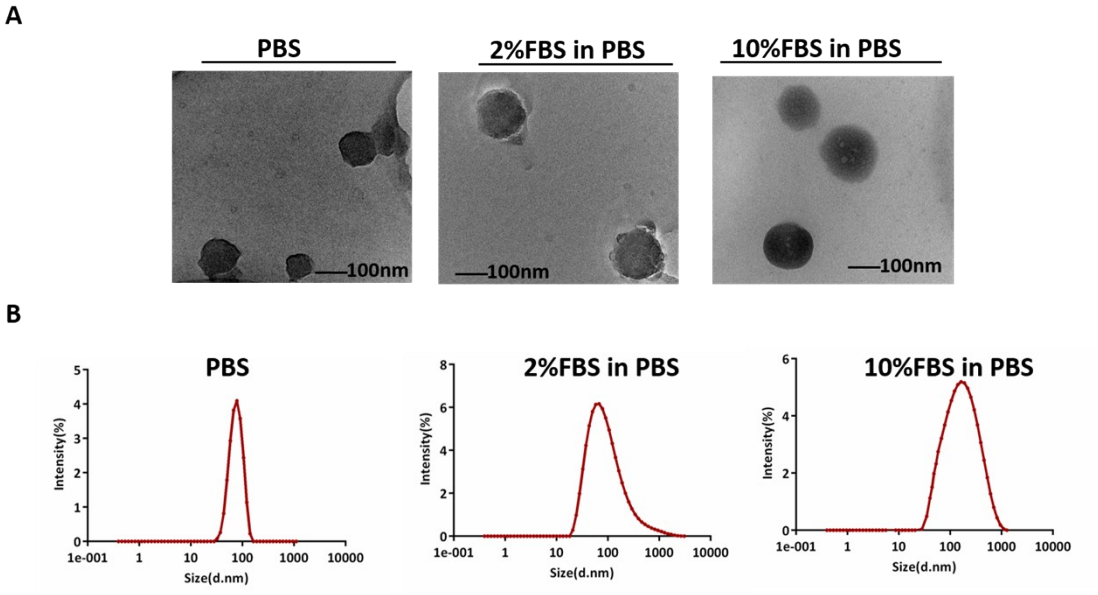


Fig. S5 Stability of PDC-AS1411 nanoparticles in different environments. (A) TEM image of FU-NHOH-AS1411 nanoparticles in PBS (pH 7.4), 2% FBS in PBS (pH 7.4) and 10% FBS in PBS (pH 7.4). (B) DLS analysis of FU-NHOH-AS1411 nanoparticles in PBS (pH 7.4), 2% FBS in PBS (pH 7.4) and 10% FBS in PBS (pH 7.4).

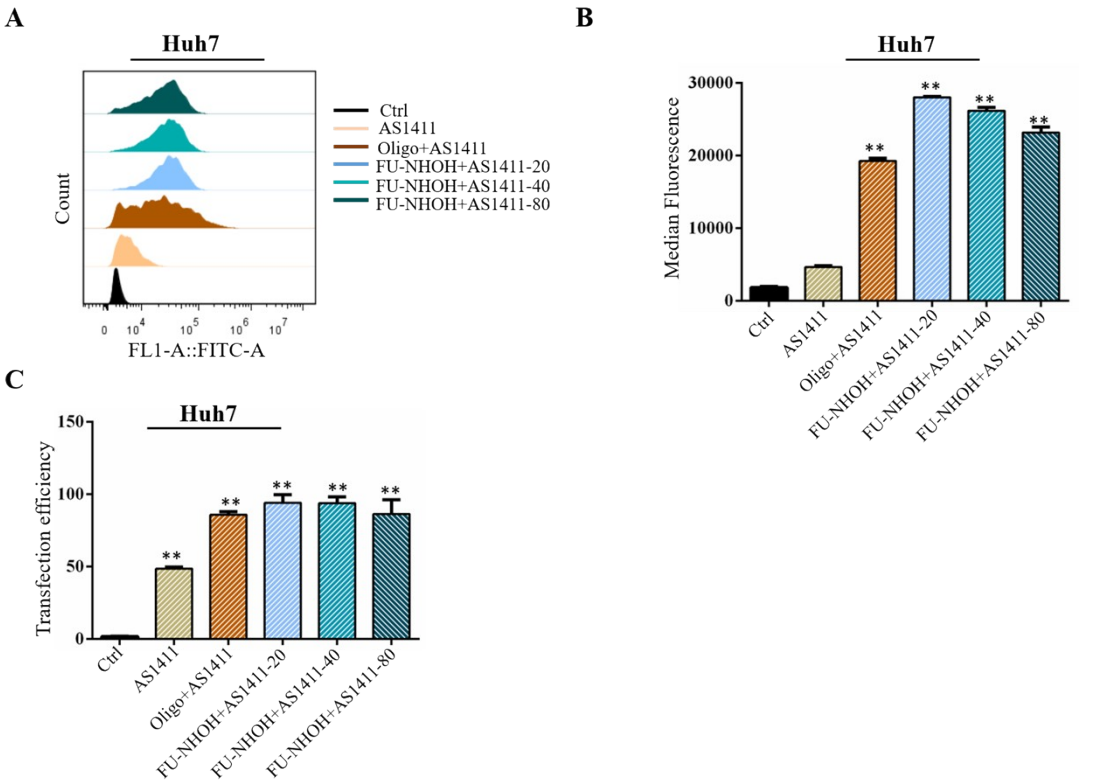


Fig. S6 Flow cytometry evaluations of the transfection efficiencies of different nanoparticles in Huh7 cells. (A) Statistical cell counts by flow cytometry, where the y-

axis represents cell counts and the x-axis the FAM fluorescence intensities.(B) Median fluorescence intensity of these nanoparticles according to Figure 3A. (C)Transfection efficiency of these nanoparticles according to Figure 3A.

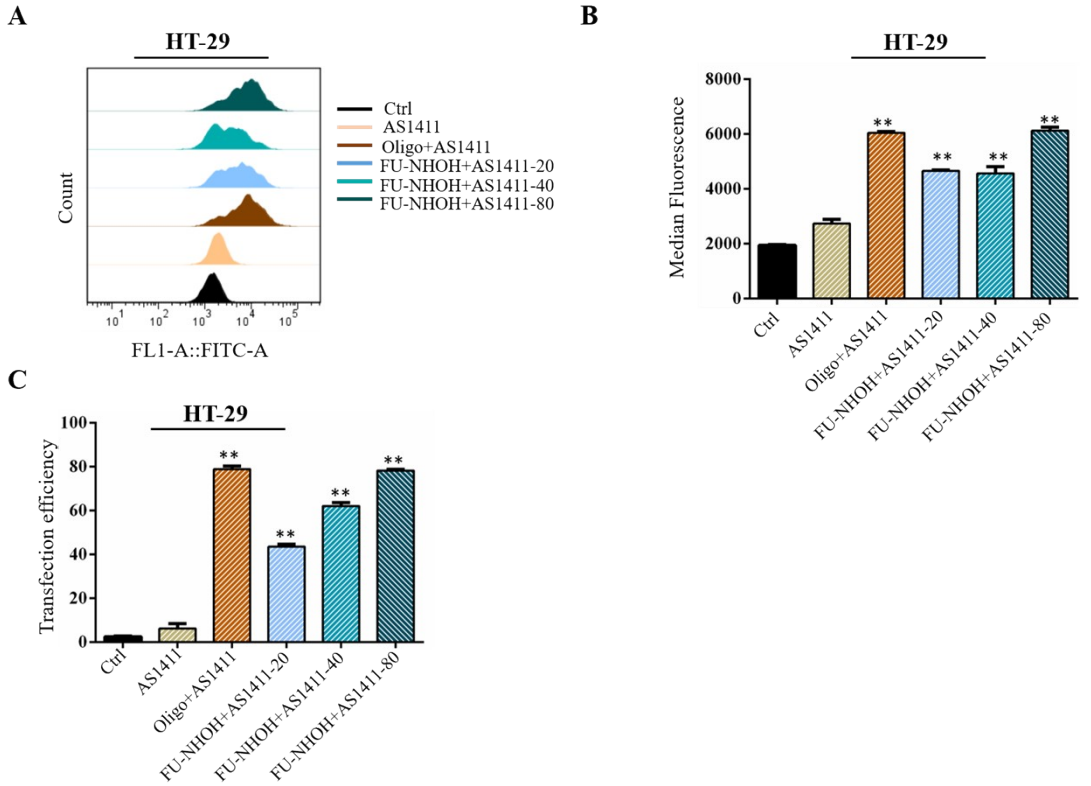


Fig. S7 Flow cytometry evaluations of the transfection efficiencies of different nanoparticles in HT-29 cells. (A) Statistical cell counts by flow cytometry, where the y-axis represents cell counts and the x-axis the FAM fluorescence intensities. (B) Median fluorescence intensity of these nanoparticles according to Figure 3A. (C)Transfection efficiency of these nanoparticles according to Figure 3A.

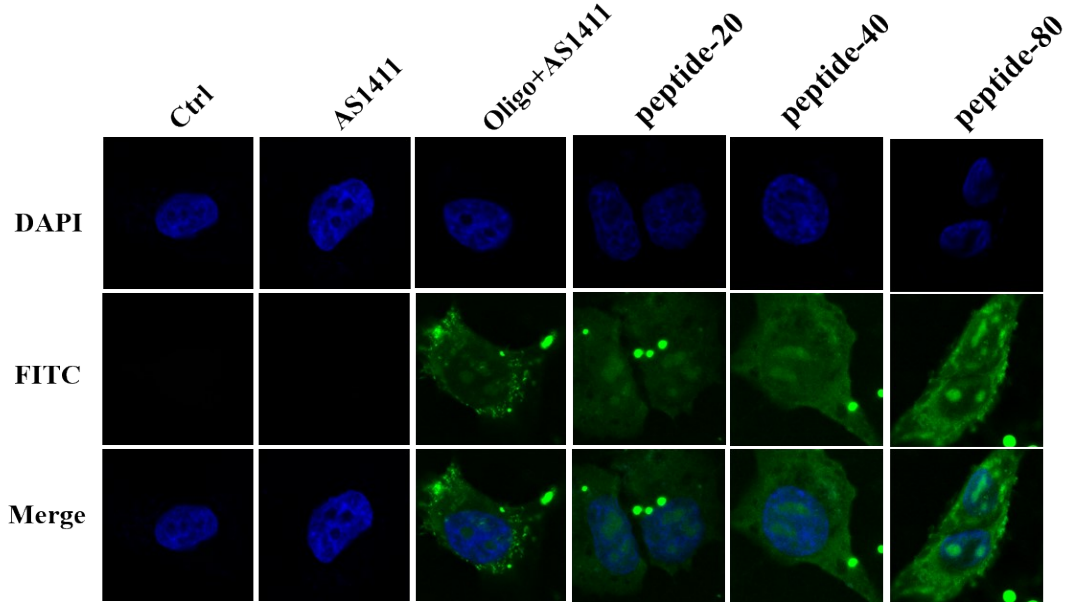


Fig. S8 Fluorescent images of Huh7 cells after incubation with different samples. Ctrl

means PBS. AS1411 means 0.3 μg FAM labeled AS1411 alone. Oligo+AS1411 means 0.3 μg FAM labeled AS1411 assembled with Oligofectamin™. Peptide-20, 40, 80 mean 0.3 μg FAM labeled AS1411 assembled with FU-NHOH of 20 μM (N/P 72), 40 μM (N/P 144), 80 μM (N/P 288) respectively.

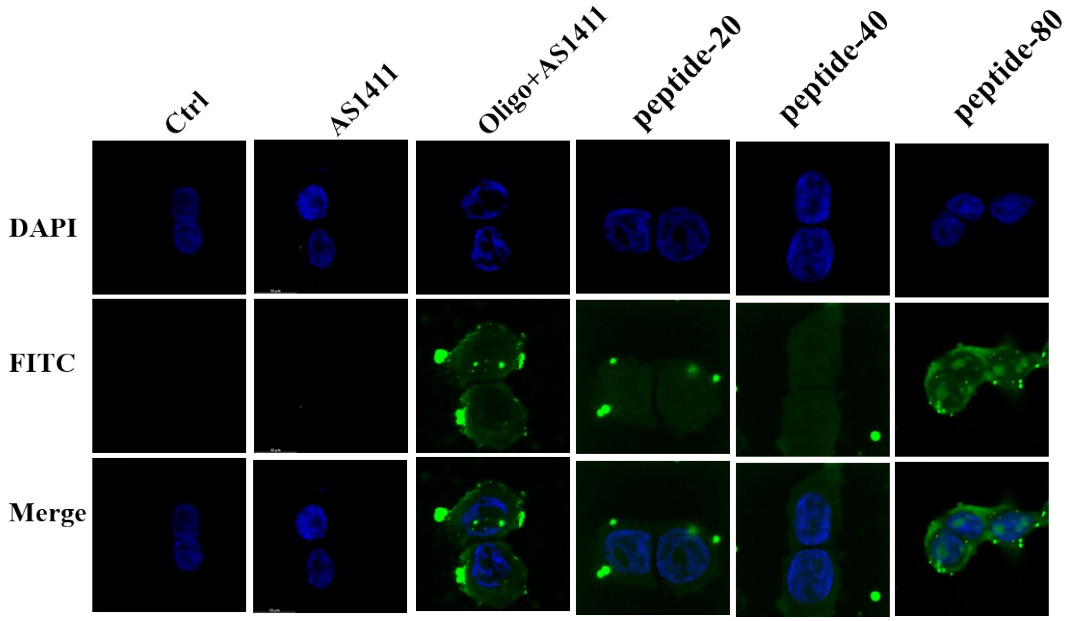


Fig. S9. Fluorescent images of HT29 cells after incubation with different samples. Ctrl means PBS. AS1411 means 0.3 μg FAM labeled AS1411 alone. Oligo+AS1411 means 0.3 μg FAM labeled AS1411 assembled with Oligofectamin™. Peptide-20, 40, 80 mean 0.3 μg FAM labeled AS1411 assembled with FU-NHOH of 20 μM(N/P 72), 40 μM (N/P 144), 80 μM (N/P 288) respectively.

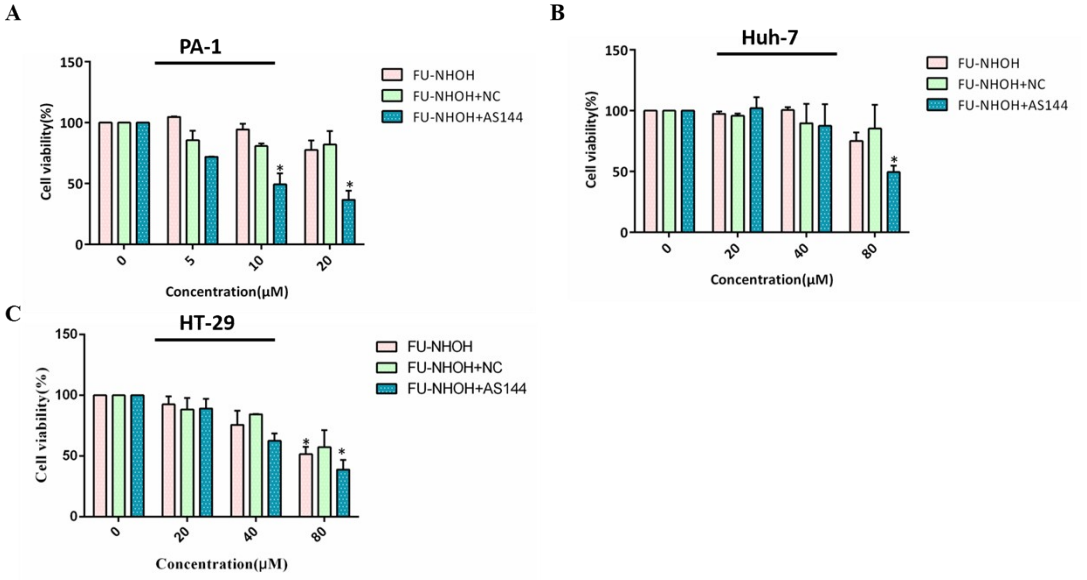


Fig. S10 Cell toxicity of peptide-AS1411 nanoparticles in PA-1 cells compared by different samples.

Fig. S11 HPLC and MS data of peptide FU-NHOH.

peptid	FU-NHOH

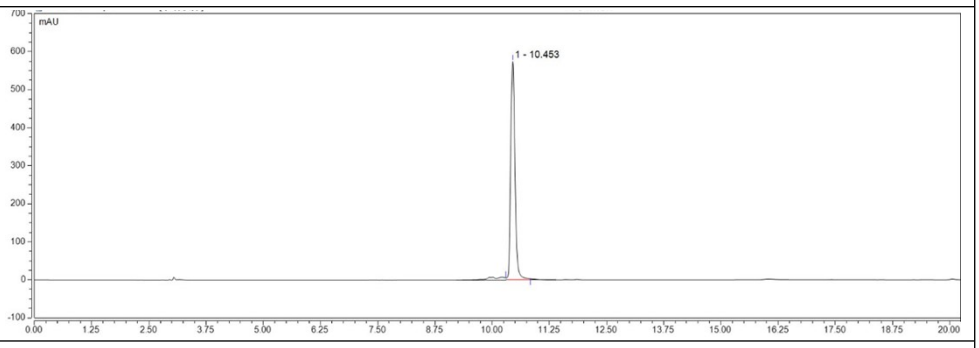
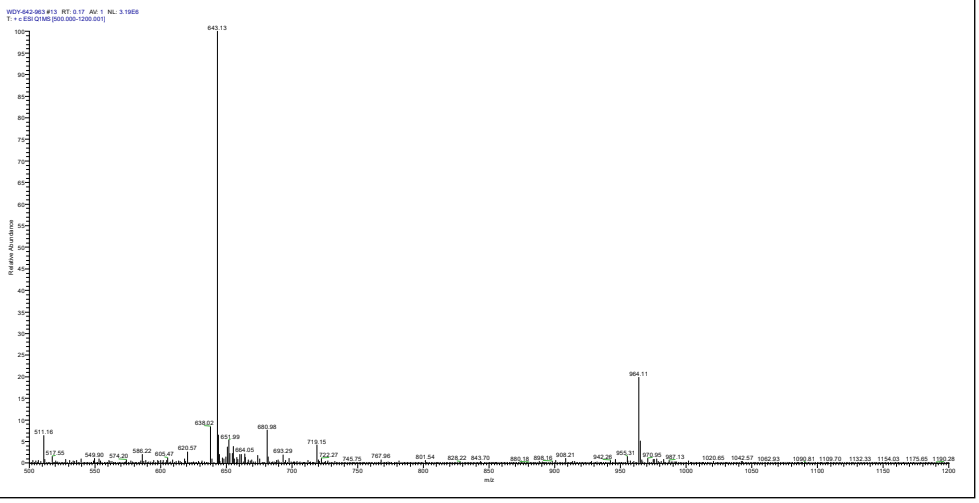
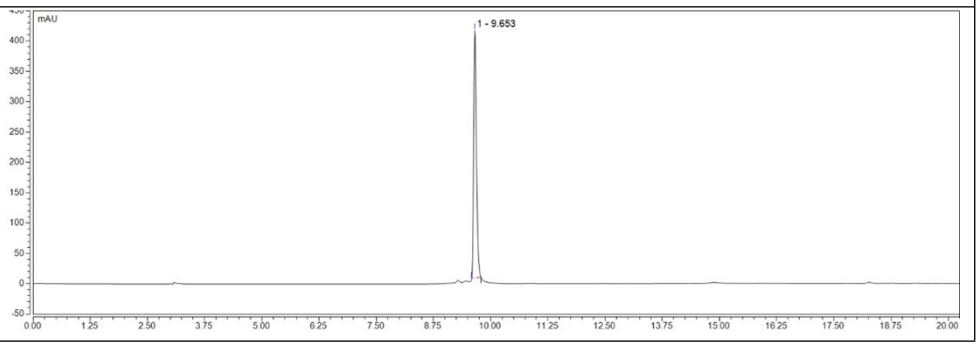
e	
HPLC	
MS	

Fig. S12 HPLC and MS data of peptide FU-RW.

peptide	FU-RW
HPLC	

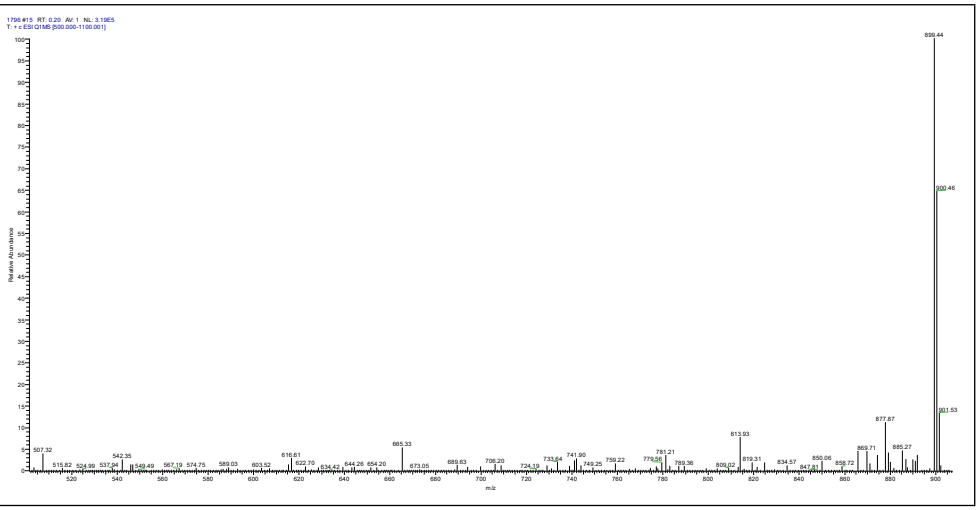
MS	

Fig. S13 HPLC and MS data of peptide RW-NHOH.

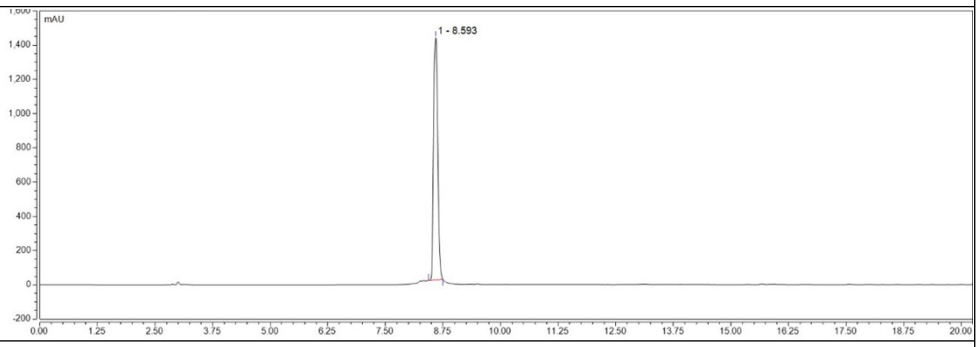
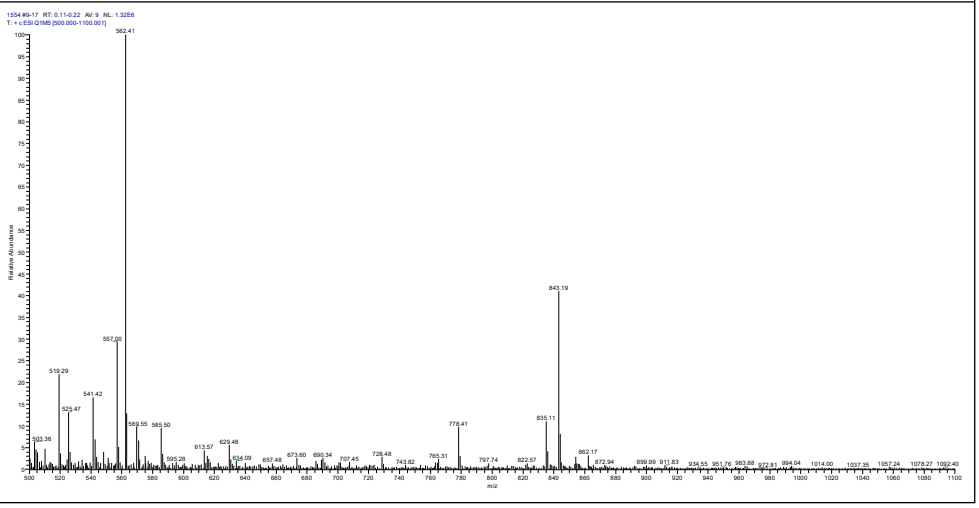
peptide	RW-NHOH
HPLC	
MS	

Fig. S14 HPLC and MS data of peptide RW.

peptide	RW

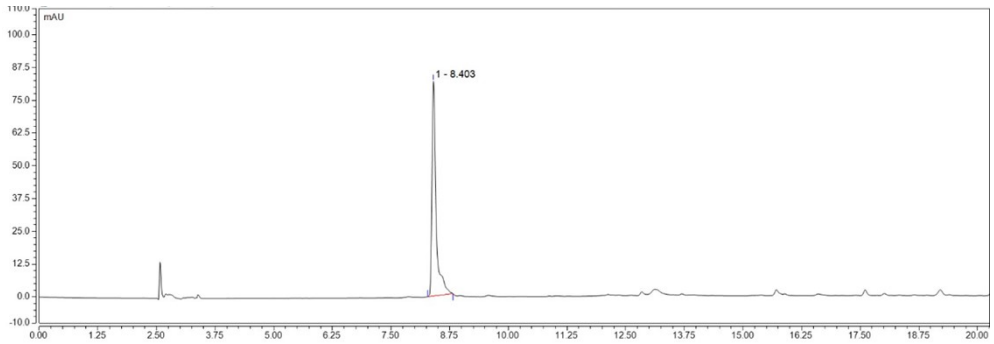
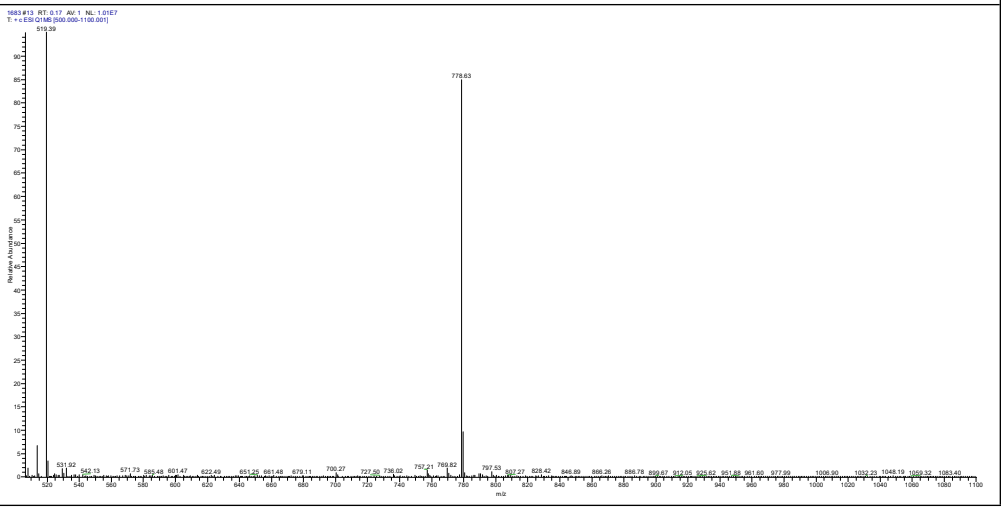
HPLC	
MS	

Fig. S15 ^{1}H NMR spectrum of 5-Fluorocrail.

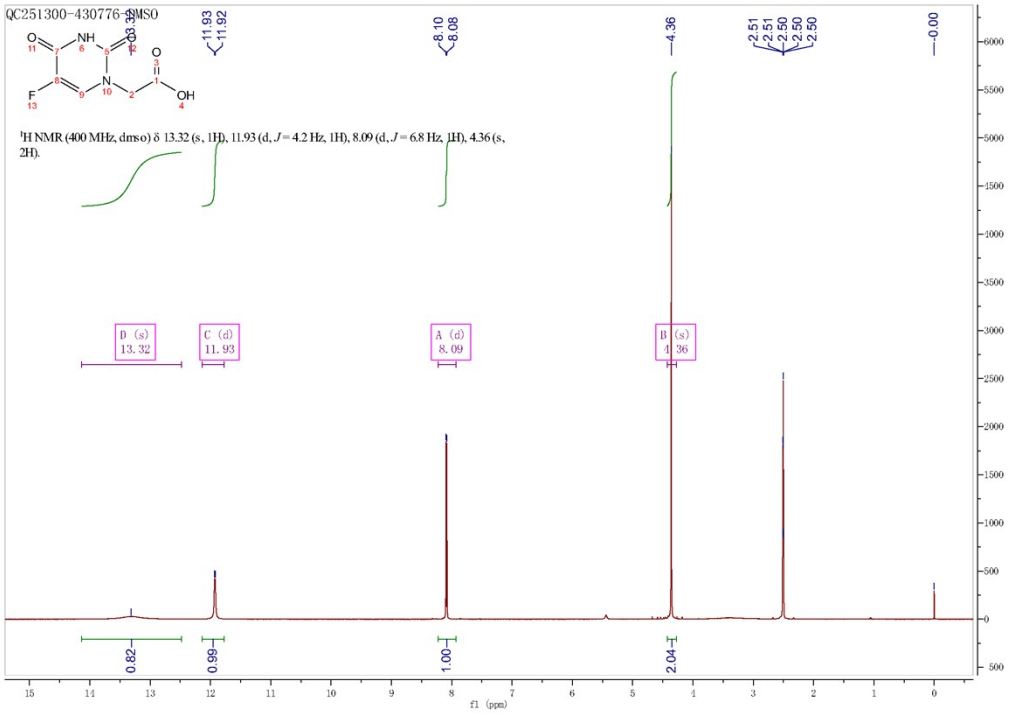


Fig. S16 DNA sequence of AS1411 or Scrambled DNA

DNA name	DNA sequence
AS1411	5'GGTGGTGGTGGTTGTGGTGGTGGTGG3'
Scrambled DNA	5'GTGTGGGGGTGGGTGGTGTGTGGTTG3'